

perfected series of *Elis* does not appear to bring the species as a whole nearer to *Meadii*, but has rather a contrary effect. While it renders increasingly plain the fact that the neutral ground between *Meadii* and *Elis* is but narrow, measured for instance by the relative unlikeness of any two closely approximate males in the two species, yet it makes more appreciable than before the systematic alienation, and the consequent diversity of averages, distinguishing the two closely allied kinds. Species so closely related as these cannot be satisfactorily estimated from scrutiny of a few isolated examples. In critical cases, before a doubtful specimen can aid in a final determination of the limits and position of the species, the dubious

example must itself be identified by comparison with the species. If two males of *Elis*, one highly typical and one extremely divergent in the conservative direction, are brought into contrast with the adjacent species *Meadii*, the very obvious hiatus between the two *Elis* (resulting from absence of perhaps a dozen usual intergrades) may impress an observer as a far more momentous separation than the narrow interval parting the off-type individual of *Elis* from the species *Meadii*. But when the missing intergrades are procured, and the vacuum (which Nature abhors) is filled, the resemblance of the untypical example to *Meadii* at once takes secondary place, and its affinity for the species *Elis* becomes the prominent fact.

WESTERN PEDICIAE, BITTACOMORPHAE AND TRICHOCERAE.

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The perusal of J. M. Aldrich's paper in *Psyche*, February 1895, aroused my recollections of twenty years ago, and made me examine old manuscript notes of mine. What I found in them may be of some use in connection with the three above-named genera.

Pedicia obtusa. Since I described this species in 1877, I have received from Mr. James Behrens of San Francisco a pair of it, taken in Siskiyou Co., Cal., on Sept. 27 and Oct. 6. Both specimens agree with the one

described by me in *not* having the brown pattern of the wings prolonged towards the posterior margin. The female has the usual double stripe in the middle of the thorax of a saturate yellow, longitudinally bisected by a brown line, which is the prolongation of the narrow median black line of the pronotum (or collar), and reaches backwards the tip of the scutellum. The male is a somewhat immature specimen, paler yellow in coloring; the thoracic brown line is perceptible

on the front part of the thorax only. The male forceps is rather large, as described by Aldrich.

In Bigot's collection I noticed a specimen from Washington State (at that time a Territory), collected by Morrison. The brown pattern is prolonged to the posterior margin, as in Aldrich's specimen. I have no doubt that all these specimens belong to the same species.

But in the same collection I saw a *Pedicia* from Mt. Hood (Morrison) with a very extraordinary modification in the coloration of the wings. To the pattern of *P. obtusa* is added a broad brown border, running along the posterior margin of the wing, from the root to the apex, where it is bounded by the posterior branch of the fork of the third vein; the breadth of the fork itself remains hyaline. The second posterior cell, in the specimen, was remarkably small. The abdomen was broken, and therefore a comparison with that of *P. obtusa* not possible. Was this a different species, or also a mere variety?

Bittacomorpha occidentalis Aldr. The detailed description of this species is a very interesting addition to our knowledge, and I have no doubt that the Californian specimens, which I saw in Verrall's collection, and suspected as belonging to a species different from the eastern *B. clavipes* (O. S., Cat. N. Am. Dipt. p. 36), really belong to *B. occidentalis*.

Trichocera trichoptera O. S., Western Dipt., p. 204. This was the only specimen of the genus *Trichocera*

which I captured during a seven months' residence in California. It is distinguished from the other *Trichocerae* by the distinct pubescence of its wing-veins; in other respects, and especially in the venation, there is no reason, according to my statement, to distinguish it from a true *Trichocera*. During my visit to Bigot I discovered three female specimens of a *Trichocera* with pubescent wing-veins in his collection, brought from Washington State by Morrison, and about which I took down the following notice: "They are larger than *T. trichoptera* O. S. and have distinct stripes on the thoracic dorsum. They differ from typical *Trichocerae* in having the seventh longitudinal vein *concave*, and not *convex*; the ovipositor has not the shape characteristic of that genus (with the convexity turned upwards); it consists of a pair of oval, finely pubescent, closely approximate valvules." For the detailed character of *Trichocera* I refer to Monogr. N. Am. Dipt. iv, p. 233, and for the convex seventh vein to tab. ii, f. 13 of the same volume. Now the three females from Washington, with their pubescent venation and their *concave* seventh vein, come very near to European *T. hirtipennis* Siebke, for which the new genus *Diazoma* Wallengr. (name preoccupied) was established. To those who will come across the species from Washington it will belong to determine whether they are, in all respects, generically identical with *Diazoma*. The literature on the subject they will find in my Studies on Tip. ii, p. 281

(Berl. Ent. Z. 1887). I would recommend them, at the same time, to have my type specimen of *T. trichoptera* in the Mus. Comp. Zool. in Cambridge, Mass., carefully examined in order to ascertain whether my description is correct. I wrote and published the Western Diptera in a great hurry

between my return from California in the autumn of 1876 and my final departure for Europe in the spring of 1877, and I would in this case not trust my own statement without further verification.

Heidelberg, Germany,
Feb. 12, 1895.

FAILURE TO EMERGE OF ACTIAS LUNA.

In looking over a box of cocoons to-day, I came upon five, of *A. luna*, which felt suspiciously light. I cut them open, and in each I found an undeveloped imago which had crawled out of the pupa-skin and had not been able to force its way out of the cocoon.

Each one lay with its head against the anal end of the empty pupa-skin, and the cocoon was filled with "fluff" made by the scales of the moth rubbed off in its struggle to get free.

Four days ago I received a large cocoon of *A. luna*, sent by mail, and one end of which was so wet that I expected the moth to emerge at any time. Instead, the wet spot dried, and two days later I cut open the cocoon, and found the moth with head and thorax out of the pupa-skin, and apparently dead. Taking the pupa out of the cocoon I began to cut away the skin, when the imago moved feebly. By the time I had removed all the pupa-skin the moth was sufficiently revived to cling to my finger, and was placed in a cage, where it hung for twelve hours without expanding the wings at all.

The next morning, however, the wings were fully spread, and the moth is now the largest ♀ I have ever seen. The pupa-skin was perfectly dry, and there has not been one drop of meconium discharged.

In the five cocoons first mentioned there was no meconium, and no evidence of the ends having been moistened.

This may be an experience common to entomologists, but it is entirely new to me.

Caroline G. Soule.

Brookline, Mass.,
June 2, 1894.

ENTOMOLOGICAL NOTES.

Dr. S. W. Williston of Lawrence, Kansas, has in press a work, entirely rewritten, on the classification and structure of North American Diptera. It will contain tables of all the North American genera, including those from Central America and the West Indies, together with descriptions of larvae, habits, anatomy, etc. It will appear next autumn. In its preparation he has had the assistance of Messrs. Aldrich, Townsend, Snow and Johnson, who have kindly prepared or revised the tables of the families with which they are best acquainted.

In a recent and excellently illustrated memoir (*Musaeum Dzeduszyckianum*, iv-Lemberg) on the insect fauna of the petroleum beds of Boroslow, Galicia, Lemnicki describes no less than seventy-six Coleoptera, of which nineteen are regarded as identical with living European insects, while the others find their nearest allies in boreal Europe, Asia and America. As only four species are identical with those found by Flach at Hösbach, Bavaria, in beds looked upon as Lower Pleistocene by Flach, and since the Hösbach Coleoptera as a whole show far less boreal affinities than those of Galicia, Lemnicki thinks the Hösbach fauna must be considered Middle Pleistocene and the Galician Lower Pleistocene.